

What is claimed is:

1. A gas sensor comprising:

5 a gas sensing element including a cup-shaped cylindrical solid electrolytic element having a reference gas chamber defined therein, a measured gas sensing electrode provided on an outer surface of said solid electrolytic element, and a reference gas sensing electrode provided on an inner surface of said solid electrolytic element facing said reference gas chamber, and

a heater accommodated in said reference gas chamber,

10 wherein a contact portion is provided on an outer cylindrical surface of said heater so that said contact portion is brought into contact with an inside surface of said reference gas chamber, and

a heat generating peak position of said heater is in the vicinity of said contact portion.

2. A gas sensor comprising:

20 a gas sensing element including a cup-shaped cylindrical solid electrolytic element having a reference gas chamber defined therein, a measured gas sensing electrode provided on an outer surface of said solid electrolytic element, and a reference gas sensing electrode provided on an inner surface of said solid electrolytic element facing said reference gas chamber, and

a heater accommodated in said reference gas chamber,

25 wherein said heater has a heat generating section for generating heat in response to electric power supplied thereto, and

an electric resistive value of said heat generating section is maximized in the vicinity of a contact portion where said heater is brought into said gas sensing element.

3. A gas sensor comprising:

30 a gas sensing element including a cup-shaped cylindrical solid electrolytic element having a reference gas chamber defined therein, a measured gas sensing

electrode provided on an outer surface of said solid electrolytic element, and a reference gas sensing electrode provided on an inner surface of said solid electrolytic element facing said reference gas chamber, and
a heater accommodated in said reference gas chamber,
5 wherein a heat generating section of said heater has a heater line pattern whose density is maximized in the vicinity of a contact portion where said heater is brought into said gas sensing element.

of which

4. A gas sensor comprising:

10 a gas sensing element including a cup-shaped cylindrical solid electrolytic element having a reference gas chamber defined therein, a measured gas sensing electrode provided on an outer surface of said solid electrolytic element, and a reference gas sensing electrode provided on an inner surface of said solid electrolytic element facing said reference gas chamber, and
15 a heater accommodated in said reference gas chamber, wherein said heater has a heat generating section for generating heat in response to electric power supplied thereto, and said heat generating section has a high resistive portion provided closer to a proximal end of the gas sensor.

5. A gas sensor comprising:

20 a gas sensing element including a cup-shaped cylindrical solid electrolytic element having a reference gas chamber defined therein, a measured gas sensing electrode provided on an outer surface of said solid electrolytic element, and a reference gas sensing electrode provided on an inner surface of said solid electrolytic element facing said reference gas chamber, and
25 a heater accommodated in said reference gas chamber, wherein said heater has a heat generating section for generating heat in response to electric power supplied thereto,
30 a contact portion is provided on an outer cylindrical surface of said heater so that said contact portion is brought into contact with an inside surface of said

reference gas chamber, and

Sub A47 a heat generating peak position of said heater appears within 3/4 of a line segment extending between a distal end of a heat generating pattern closer to said contact portion and a center of said heat generating pattern for more than one fifth of a time required for the heat generating peak position of the heater to reach 900°C.

add
A5

09774650:020101